

STEM Diploma

The faculty of AHA believes that four years of core-course study in science, mathematics and technology, that incorporates the principles of engineering, is the best preparation to enter prestigious college and university programs in science, technology, engineering, and mathematics. Students in all AHA mathematics and science courses achieve the essential elements of a STEM program.

The STEM Diploma recognizes those students who have dedicated themselves to mastery of this rigorous course of study and who can demonstrate and apply 21st Century Skills in Critical Thinking, Creativity, Communication, and Collaboration in the curricular and co-curricular areas.

Learner Outcomes

Science: By completing four years of core science courses, inclusive of biology, chemistry, and physics, students will be prepared to enter an advanced college science program.

Technology: By completing courses in fine arts and computer science, students will develop a deeper understanding of computer systems and be able to use and apply computer software skills in CAD, Word, and Excel and be able to use industrial equipment to design and build 3-D objects, model building, or robots.

Engineering: By learning and applying the Engineering Design Process, in the mathematics and science courses, students will be able to identify a problem, create a solution, and test it.

Mathematics: By completing four years of core mathematics courses, including Advanced Pre-calculus, Pre-calculus, or AP Calculus, students will be able to enter Calculus I or Calculus II in first-year college programs.

Science Requirements

Four years of science including one AP science course (AP Biology, AP Chemistry, AP Physics 1, or AP Physics 2) with a minimum grade of C.

Technology/Engineering Requirements

Completion of at least two trimesters from any of the following technology courses with a minimum grade of C:

- AP Computer Science
- Environmental Engineering
- CAD
- Computer Art
- Web Page Design
- Studio Digital Media
- Theater Design and Technical Production
- Architectural Model Building
- Woodworking I/II

Math Requirements

Four years of math including the completion of Pre-Calculus, Advanced Pre-Calculus, or AP Calculus or higher with a minimum grade of C.

STEM Experience Requirements

1. Job Shadow with a scientist, engineer, dentist, physician, or similar professional in the area of science, mathematics, or technology (6 hour minimum)
2. All students must complete two additional STEM experiences from the following list:
 - Research Project
 - Summer Internship
 - Job Shadow (must be different from first job shadow experience)
 - Volunteer in a lab
 - Participation in a STEM activity/club (Robotics, Math STARS, Knowledge Bowl or other similar group) for two years
 - Other project approved by the STEM coordinator
 - Presentation of STEM Diploma at STEM Fair

Communication Requirements

It is important that all STEM students be able to communicate their experiences to others.

- Letter of Intent for STEM Diploma completed by May 31 of 11th grade
- Completion of Internship /Job Shadow(s) log and reflection essay
- Submit the STEM Diploma Application and supporting paperwork to STEM coordinator

Using and exploring creativity is essential. For related coursework, try: Introduction to Drawing, Anatomy & Physiology, Engineering and Technology in Science, Public Speaking & Presentation Styles, Speech Team, Moral Philosophy, Music, Starlight Productions- set design.